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EXAMINER	
SELBY, GEVELL V	

ART UNIT	PAPER NUMBER
2615	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/669,118	YOSHIOKA ET AL.	
	Examiner	Art Unit	
	Gevell Selby	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 September 2000* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments see the amendment, filed 2/7/05, with respect to the rejection(s)of claim(s) 1-20 under 35 U.S.C. 102 and 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Maruyama et al., US 5,867,741 and Ochi et al., US 5,764,285.

2. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 6-8, 10-12, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maruyama et al., US 5,867,741 in view of Ochi et al., US 5,764,285.

In regard to claim 1, Maruyama et al., US 5,867,741, discloses a digital camera (see figure 1) comprising:

an image sensor (see figure 1, element 15) disposed at a position at which an image is to be formed by a taking lens (see column 4, lines 32-37);

a recorder (see figure 1, element 26) for recording on a recording medium an image sensed by said image sensor in accordance with recording instructions (see column 4, lines 50-54);

a semitransparent mirror (see figure 1, element 5) which rotates about an axis in a direction perpendicular to the optical axis of the taking lens so as to move between an advanced position intersecting at an inclination the optical path from the taking lens to the linear image sensor (see column 4, line 65 to column 5, line 9), and a retracted position removed from the optical path for photographing in a second photographing mode (see column 6, line 63 to column 7, line 10); and

an optical finder (see figure 1, element 29, 30, and 31) providing an image by directing the light reflected by said semitransparent mirror set at the advanced position from the taking lens to the eye of a user (see column 5, lines 27-30).

The Maruyama reference discloses that the linear sensor is used for auto focusing and does not disclose that the linear sensor photographs an image formed by the taking lens.

Ochi et al., US 5,764,285, discloses a camera (see figure 5) with an area sensor (12) and a line sensor (11) that captures image data with both sensors and combines the data to create a high-resolution picture (see column 1, line 50 to column 2, line 5). The line sensor is capable of reading and converting the object image into single color data and the area sensor is capable of reading and converting the image into a plurality of color data, which enable the device to take a picture with a high resolution (see column 6, lines 53-61).

It would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify Maruyama et al., US 5,867,741 in view of Ochi et al., US 5,764,285 to have the linear image sensor disposed at a position at which an image is to be formed by a taking lens for photographing in the first photographing mode, wherein the liner image sensor is capable of reading and converting the object image into single color data to combine with the area sensor image data, in order for the linear sensor to perform focusing and contribute to the creation of a high-resolution image.

In regard to claim 2, Maruyama et al., US 5,867,741 in view of Ochi et al., US 5,764,285, discloses a digital camera according to claim 1. The Maruyama reference discloses wherein said semitransparent mirror is a quick return mirror (see figure 2, steps S11 and S 13 and column 6, line 63-65 and column 7, lines 8-9).

In regard to claim 6, Maruyama et al., US 5,867,741 in view of Ochi et al., US 5,764,285, discloses a digital camera according to claim 1. The Maruyama reference discloses:

> a driver (see figure 11, element 11) for moving the taking lens between a first position and a second position in a direction along the optical path, the first position and the second position are set so as to equalize the optical path length from the first position directly to said image sensor when said semitransparent mirror is set at the retracted position, and the optical path length from the second position through said semitransparent mirror to said image sensor when said semitransparent mirror is set at the advanced position (see column 5, lines 16-26:

It is inherent the lens is moved to different positions for focusing according to the different modes.)

In regard to claim 7, Maruyama et al., US 5,867,741 in view of Ochi et al., US 5,764,285, discloses a digital camera according to claim 1. The Maruyama reference discloses wherein:

said digital camera is controllable under a first photographic mode wherein said semitransparent mirror is set at the advanced position until recording is instructed, and set at the retracted position when recording has been instructed, and returns to the advanced position again when said image sensor completes the sensing of the image (see column 6, lines 63 to column 7, line 10), and a second photographic mode wherein said semitransparent mirror is set at the advanced position regardless of whether or not the recording is instructed (see column 6, lines 44-49).

In regard to claim 8, Maruyama et al., US 5,867,741 in view of Ochi et al., US 5,764,285, discloses a digital camera according to claim 1. The Maruyama reference discloses further comprising a display (see figure 1, element 23) for displaying an image sensed by said image sensor (see column 4, lines 50-54).

In regard to claim 10, Maruyama et al., US 5,867,741, discloses a digital camera comprising:

an image sensor (see figure 1, element 15) disposed at a position at which an image is to be formed by a taking lens (see column 4, lines 32-37); and

an optical element (see figure 1, element 5) movable between an advanced position intersecting at an inclination the optical path from the taking lens to the

linear image sensor, and a retracted position removed from the optical path (see figure 2, steps S11 and S 13 and column 6, line 63-65 and column 7, lines 8-9),

wherein said digital camera is controllable under a first photographic mode wherein said optical element is set at the advanced position for photography (see column 6, lines 44-50), said image sensor receiving said image through the semitransparent mirror in said advanced position, and a second photographic mode wherein said optical element is set at the retracted position for photography (see column 6, line 63 to column 7, line 10), and the optical path lengths from the taking lens to said image sensor are equalized in the first photographic mode and the second photographic mode by moving the taking lens in a direction along the optical axis of the taking lens (see column 6, lines 23-31).

The Maruyama reference discloses that the linear sensor is used for auto focusing and does not disclose that the linear sensor photographs an image formed by the taking lens.

Ochi et al., US 5,764,285, discloses a camera (see figure 5) with an area sensor (12) and a line sensor (11) that captures image data with both sensors and combines the data to create a high-resolution picture (see column 1, line 50 to column 2, line 5). The line sensor is capable of reading and converting the object image into single color data and the area sensor is capable of reading and converting the image into a plurality of color data, which enable the device to take a picture with a high resolution (see column 6, lines 53-61).

It would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify Maruyama et al., US 5,867,741 in view of Ochi et al., US 5,764,285 to have the linear image sensor disposed at a position at which an image is to be formed by a taking lens for photographing in the first photographing mode, wherein the liner image sensor is capable of reading and converting the object image into single color data to combine with the area sensor image data, in order for the linear sensor to perform focusing and contribute to the creation of a high-resolution image.

In regard to claim 11, Maruyama et al., US 5,867,741 in view of Ochi et al., US 5,764,285, discloses a digital camera according to claim 10. The Maruyama reference discloses wherein said optical element is at least a single element for photography (see figure 1, element 5 and column 4, lines 65-67).

In regard to claim 12, Maruyama et al., US 5,867,741, discloses a digital camera according to claim 11. The Maruyama reference discloses wherein said optical element is at least one of semitransparent mirror (see column 4, lines 65-67).

In regard to claim 20, Maruyama, US 6,421,506 discloses a digital camera comprising:

an image sensor (see figure 1, element 17) disposed at a position at which an image is to be formed by a taking lens (see column 10, lines 35-51); and

an optical element (see figure 1, element 4) movable between an advanced position intersecting at an inclination the optical path from the taking lens to the

linear image sensor, and a retracted position removed from the optical path (see column 6, line 65 to column 7, line 4),

wherein said digital camera is controllable under a first photographic mode wherein said optical element is set at the advanced position for photography (see column 7, lines 26-67: In the first mode, the mirror is set in the forward position and the line sensor capture image to adjust the focus), and a second photographic mode wherein said optical element is set at the retracted position for photography (see column 8, lines 1-49: In the second mode the mirror is retracted to capture the image on the film), and the optical path lengths from the taking lens to said image sensor are equalized in the first photographic mode and the second photographic mode by moving the image sensor (The optical path to the area sensor is the same for either mode).

The Maruyama reference discloses that the linear sensor is used for auto focusing and does not disclose that the linear sensor photographs an image formed by the taking lens.

Ochi et al., US 5,764,285, discloses a camera (see figure 5) with an area sensor (12) and a line sensor (11) that captures image data with both sensors and combines the data to create a high-resolution picture (see column 1, line 50 to column 2, line 5). The line sensor is capable of reading and converting the object image into single color data and the area sensor is capable of reading and converting the image into a plurality of color data, which enable the device to take a picture with a high resolution (see column 6, lines 53-61).

It would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify Maruyama et al., US 5,867,741 in view of Ochi et al., US 5,764,285 to have the linear image sensor disposed at a position at which an image is to be formed by a taking lens for photographing in the first photographing mode, wherein the liner image sensor is capable of reading and converting the object image into single color data to combine with the area sensor image data, in order for the linear sensor to perform focusing and contribute to the creation of a high-resolution image.

3. Claims 3, 4, 5, and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maruyama et al., US 5,867,741 in view of Ochi et al., US 5,764,285, as applied to claims 1 and 10 above, and further in view of Ishikawa, US 5,946,028.

In regard to claims 3 and 15, Maruyama et al., US 5,867,741 in view of Ochi et al., US 5,764,285, discloses a digital camera according to claims 1 and 10, respectively. The Maruyama and Ochi references lack the limitation wherein:

> said image sensor is movable between a first position and a second position, and said image sensor is positioned in the first position when said semitransparent mirror or optical element is in the retracted position and positioned in the second position when said semitransparent mirror or optical element is in the advanced position,
>
> wherein the second position with said semitransparent mirror or optical element intersecting the optical path and the first position without said mirror or optical element are optically equivalent with each other.

Ishikawa, US 5,946,028, discloses a digital camera with an image sensor and lens that can be moved together or independently from an out-of-focus position to an in-focus position. The examiner reads the Ishikawa, US 5,946,028, as implying that when the quick return mirror is in the raised position for image capture mode, the lens is at the first position. When the quick return mirror is lowered into the optical path, the lens is moved to a second position to adjust the focus for the next image capture (see column 3 line 61 to column 4, line 9). A computer can adjust the lens and image sensor independently in order to equalize the imaging position making them optically equivalent (see column 5, lines 45-52).

In would have been obvious to a person skilled in the art, at the time of invention to modify Maruyama et al., US 5,867,741, in view of Ishikawa, US 5,946,028, to have:

> said image sensor is movable between a first position and a second position, and said image sensor is positioned in the first position when said semitransparent mirror or optical element is in the retracted position and positioned in the second position when said semitransparent mirror or optical element is in the advanced position,
>
> wherein the second position with said semitransparent mirror or optical element intersecting the optical path and the first position without said mirror are optically equivalent with each other,
>
> in order to move the elements into an in-focus position as taught by Ishikawa (see column 3, line 61 to column 4, line 2).

In regard to claims 4 and 16, Maruyama et al., US 5,867,741 in view of Ochi et al., US 5,764,285, and further in view of Ishikawa, US 5,946,028, discloses a digital camera according to claims 3 and 15, respectively, wherein:

the first position and the second position are set so as to equalize the optical path length (see Ishikawa: column 1, lines 63-65) from the taking lens directly to said image sensor when said semitransparent mirror or optical element is set at the retracted position, and the optical path length from the taking lens through said semitransparent mirror or optical element to said image sensor when said semitransparent mirror or optical element is set at the advanced position.

The lens and the image sensor are moved together an equal distance from the first position to the second position, keeping the optical path length equalized.

In regard to claims 5 and 17, Maruyama et al., US 5,867,741 in view of Ochi et al., US 5,764,285, and further in view of Ishikawa, US 5,946,028, discloses a digital camera according to claims 3 and 15, respectively, wherein the first position and the second position are set so as to equalize the imaging position of an image formed by the taking lens directly on said image sensor when said semitransparent mirror or optical element is set at the retracted position, and the imaging position of an image formed by the taking lens through said semitransparent mirror or optical element on said image sensor when said semitransparent mirror or optical element is set at the advanced position (see column 5, lines 45-52: A computer can adjust the lens and image sensor independently in order to equalize the imaging position making them optically equivalent).

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maruyama et al., US 5,867,741 in view of Ochi et al., US 5,764,285, as applied to claim 1 above, and further in view of Aoki et al., US 4,553,170.

In regard to claim 9, Maruyama et al., US 5,867,741 in view of Ochi et al., US 5,764,285, discloses a digital camera according to claim 8. The Maruyama reference discloses wherein:

said digital camera is controllable under a first photographic mode wherein said semitransparent mirror is set at the advanced position until recording is instructed, and set at the retracted position when recording has been instructed (see column 6, line 63 to column 7, line 10). The Maruyama and Ochi references do not disclose a second photographic mode wherein said semitransparent mirror is set at the retracted position regardless of whether or not the recording is instructed.

Aoki et al., US 4,553,170, discloses a camera with a photographic mode wherein said semitransparent mirror is set at the retracted position regardless of whether or not the recording is instructed (see column 4, lines 1-12).

It would have been obvious to a person skilled in the art, at the time of invention, to modify Maruyama et al., US 5,867,741, in view of Ochi et al., US 5,764,285, and further in view of Aoki et al., US 4,553,170, to have second photographic mode wherein said semitransparent mirror is set at the retracted position regardless of whether or not the recording is instructed in order to photograph continuously as taught by Aoki (see column 4, lines 1-2).

5. Claims 13, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maruyama et al., US 5,867,741, in view of Ochi et al., US 5,764,285, as applied to claim 10 above, and further in view of the applicant's prior art.

In regard to claim 13, Maruyama et al., US 5,867,741, in view of Ochi et al., US 5,764,285, discloses a digital camera according to claim 10. The Maruyama and Ochi references do not disclose wherein said optical element is moved between the advanced position and the retracted position by rotation.

It is well known and old in the art that a quick return mirror is rotated into advanced position in the optical path, when in viewing mode, and when the camera is in image capture mode, the mirror is rotated up out of the optical path to a raised position as explained in the applicant's background describing a SLR type digital camera (see the specification, page 3, lines 4-15).

It would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify Maruyama et al., US 5,867,741, in view of Ochi et al., US 5,764,285, and further in view of the applicant's prior art to have the optical element is moved between the advanced position and the retracted position by rotation, in order to photograph with the imaging means positioned after the mirror.

In regard to claim 18, Maruyama et al., US 5,867,741, discloses a digital camera comprising:

an image sensor (see figure 1, element 15) disposed at a position at which an image is to be formed by a taking lens (see column 4, lines 32-37);

a recorder (see figure 1, element 26) for recording on a recording medium an image sensed by said image sensor in accordance with recording instructions (see column 4, lines 50-54);

a semitransparent mirror (see figure 1, element 5) which is driven so as to move between an advanced position intersecting at an inclination the optical path from the taking lens to the liner image sensor and a retracted position removed from the optical path (see column 6, line 63 to column 7, line 10);

an optical finder (see figure 1, element 29, 30, and 31) providing an image by directing the light reflected by said semitransparent mirror set at the advanced position from the taking lens to the eye of a user (see column 5, lines 27-30); and

a display portion (see figure 1, element 23) which displays the image sensed by said image sensor, said display option displaying the image which is formed at the image sensor with the light transmitted through the semitransparent mirror at the advanced position from the taking lens (see column 4, lines 38-55).

The Maruyama reference discloses that the linear sensor is used for auto focusing and does not disclose that the linear sensor photographs an image formed by the taking lens.

Ochi et al., US 5,764,285, discloses a camera (see figure 5) with an area sensor (12) and a line sensor (11) that captures image data with both sensors and combines the data to create a high-resolution picture (see column 1, line 50 to column 2, line 5). The line sensor is capable of reading and converting the object image into single color data and the area sensor is capable of reading and

converting the image into a plurality of color data, which enable the device to take a picture with a high resolution (see column 6, lines 53-61).

It would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify Maruyama et al., US 5,867,741 in view of Ochi et al., US 5,764,285 to have the linear image sensor disposed at a position at which an image is to be formed by a taking lens for photographing in the first photographing mode, wherein the liner image sensor is capable of reading and converting the object image into single color data to combine with the area sensor image data, in order for the linear sensor to perform focusing and contribute to the creation of a high-resolution image.

The reference does not disclose that the semitransparent mirror rotates about an axis in a direction perpendicular to the optical axis of the taking lens.

It is well known and old in the art that a quick return mirror is rotated into advanced position in the optical path, when in viewing mode, and when the camera is in image capture mode, the mirror is rotated up out of the optical path to a raised position as explained in the applicant's background describing a SLR type digital camera (see the specification, page 3, lines 4-15).

It would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify Maruyama et al., US 5,867,741, in view of Ochi et al., US 5,764,285, and further in view of the applicant's prior art to have the semitransparent mirror rotates about an axis in a direction perpendicular to the optical

axis of the taking lens, in order to move the mirror to the correct position quickly to photograph with the imaging means positioned after the mirror.

In regard to claim 19, Maruyama et al., US 5,867,741, in view of Ochi et al., US 5,764,285, and further in view of the applicant's prior art, discloses the digital camera according to claim 18. The Maruyama reference discloses wherein said image sensor is movable between a first position and a second position, and said image sensor is positioned in the first position when said semitransparent mirror is in the retracted position (see column 6, line 63 to column 7, line 10) and positioned in the second position when said semitransparent mirror is in the advanced position (see column 6, lines 44-50), wherein the second position with said semitransparent mirror intersecting the optical path and the first position without said mirror are optically equivalent with each other (see column 6, lines 23-31: The optical path is equivalent because the image viewed in the optical finder is the same as that which is capture on the recording medium).

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maruyama et al., US 5,867,741, in view of Ochi et al., US 5,764,285, as applied to claim 10 above, and further in view of Aoki, US 5,920,347.

In regard to claim 14, Maruyama et al., US 5,867,741, discloses a digital camera according to claim 10. The Maruyama and Ochi references do not disclose how the optical element is moved between the advanced position and the retracted position.

Aoki, US 5,920,347, discloses a camera with a mirror-moving unit (22m) that is raised and lower by a movement other than rotation (see figures 5 and 6).

It would have been obvious to a skilled in the art, at the time of invention, to modify Maruyama et al., US 5,867,741, in view of Ochi et al., US 5,764,285, and further in view of Aoki, US 5,920,347, to have the optical element moved between the advanced position and the retracted position by a movement other than rotation in order to move the mirror out of the optical path while requiring less space to do so as taught by Aoki (see column 7, lines 44-47).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gevell Selby whose telephone number is 571-272-7369. The examiner can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Groody can be reached on 571-272-7950. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gvs

TUAN HO
PRIMARY EXAMINER